

Amendments to Claims

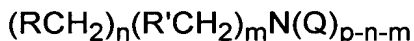
Claim 1. (Currently Amended) An element for forming a print-out image comprising:

- (a) a substrate comprising cellulose having a first surface and a second surface;
- (b) a dye forming composition on the first surface of the substrate, wherein the dye forming composition comprises at least one photoreducible quinone; and
- (c) a non-dye forming composition on the second surface of the substrate comprising at least one hydrogen donor compound.

Claim 2. (Original) The element of Claim 1 wherein the hydrogen donor compound is an organic compound containing an amine group, a hydroxy group, a phosphine group, a phosphoramidate group, or a β -dialkylaminocarbonyl moiety.

Claim 3. (Currently Amended) The element of Claim 2 wherein the hydrogen donor compound is selected from the group consisting of:

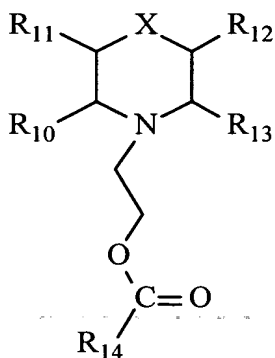
- (i) an aliphatic amine compound having the structural formula:



wherein $p = 3$, n and m are 0, 1 or 2, Q is $CH_2CH_2O_2CR''$ or CH_2CH_2COR'' , $CH_2CH_2CO_2R''$ and

R , R' and R'' are the same or different hydrogen atom, or alkyl group of 1 to 12 carbon atoms, or aryl group of 6 to 10 carbon atoms, or alkylaryl group of 7-20 carbon atoms, or alkoxyalkyl group of 1 to 12 carbon atoms; and

- (ii) a heterocyclic compound having the structural formula:



wherein X is an oxygen atom, CH_2 group, or a bridge to make a 5-membered cyclic amine,

R_{10} , R_{11} , R_{12} , and R_{13} are the same or different, hydrogen atom, or alkyl group of 1 to 12 carbon atoms, or aryl group of 6 to 10 carbon atoms, or

alkylaryl group of 7-20 carbon atoms, or alkoxyalkyl group of 1 to 12 carbon atoms, and

R₁₄ is a hydrogen atom, or alkyl group of 1 to 12 carbon atoms, or aryl group of 6 to 10 carbon atoms, or alkylaryl group of 7-20 carbon atoms, or alkoxyalkyl group of 1 to 12 carbon atoms.

Claim 4. (Currently Amended) The element of Claim 2 wherein the hydrogen donor compound is triethanol amine triacetate, triethanolamine ~~tripropionate~~ tripropionate, triethanolamine tributyrate, triethanolamine trivalerate, N,N-dibenzylethanolamine acetate, N,N-dibenzylethanolamine propionate, N,N-dibenzylethanolamine butyrate or N-benzyl(diethanolamine diacetate).

Claim 5. (Original) The element of Claim 2 wherein the hydrogen donor compound is 4-(2-hydroxyethyl)-morpholine acetate, 4-(2-hydroxyethyl)-morpholine propionate, 1-piperidineethanol acetate or 1-pyrrolidineethanol acetate.

Claim 6. (Original) The element of Claim 2 wherein hydrogen donor compound is triethanolamine triacetate.

Claim 7. (Original) The element of Claim 2 wherein the hydrogen donor compound is N,N-dibenzylethanolamine acetate.

Claim 8. (Original) The element of Claim 2 wherein the hydrogen donor compound is 4-(2-hydroxyethyl)-morpholine acetate.

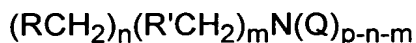
Claim 9. (Currently Amended) The element of Claim 3 wherein the tertiary aliphatic amine compound is present in the amount of about 2 to about 20% by weight, based on the weight of the total composition.

Claim 10. (Original) The element of Claim 1 wherein the dye forming composition comprises at least one hydrogen donor compound.

Claim 11. (Currently Amended) The element of Claim 10 wherein the hydrogen donor compound in the dye forming composition is an organic compound containing an amine group, a hydroxy group, a phosphine group, a phosphoramidate group, or a β -dialkylaminocarbonyl moiety.

Claim 12. (Currently Amended) The element of Claim 11 wherein the dye forming hydrogen donor compound is selected from the group consisting of:

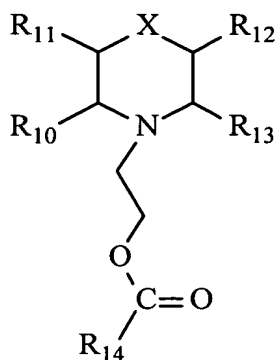
(i) an aliphatic amine compound having the structural formula:



wherein $p = 3$, n and m are 0, 1 or 2, Q is $CH_2CH_2O_2CR''$ or CH_2CH_2COR'' $CH_2CH_2CO_2R''$ and

R , R' and R'' are the same or different hydrogen atom, or alkyl group of 1 to 12 carbon atoms, or aryl group of 6 to 10 carbon atoms, or alkylaryl group of 7-20 carbon atoms, or alkoxyalkyl group of 1 to 12 carbon atoms; and

(ii) a heterocyclic compound having the structural formula:



wherein X is an oxygen atom, CH₂ group, or a bridge to make a 5-membered cyclic amine,

R₁₀, R₁₁, R₁₂, and R₁₃ are the same or different hydrogen atom, or alkyl group of 1 to 12 carbon atoms, or aryl group of 6 to 10 carbon atoms, or alkylaryl group of 7-20 carbon atoms, or alkoxyalkyl group of 1 to 12 carbon atoms, and

R₁₄ is a hydrogen atom, or alkyl group of 1 to 12 carbon atoms, or aryl group of 6 to 10 carbon atoms, or alkylaryl group of 7-20 carbon atoms, or alkoxyalkyl group of 1 to 12 carbon atoms.

Claim 13. (Currently Amended) The element of Claim 12 wherein the dye forming hydrogen donor compound is triethanol amine triacetate, triethanolamine ~~tripropionate~~ tripropionate, triethanolamine tributyrate, triethanolamine trivalerate, N,N-dibenzylethanolamine acetate, N,N-dibenzylethanolamine propionate, N,N-dibenzylethanolamine butyrate or N-benzyl(diethanolamine diacetate).

Claim 14. (Currently Amended) The element of Claim 11 wherein the dye forming hydrogen donor compound is 4-(2-hydroxyethyl)-morpholine acetate, 4-(2-hydroxyethyl)-morpholine propionate, 1-piperidineethanol acetate or 1-pyrrolidineethanol acetate.

Claim 15. (Currently Amended) The element of Claim 11 wherein the dye forming hydrogen donor compound is triethanolamine triacetate.

Claim 16. (Currently Amended) The element of Claim 11 wherein the dye forming hydrogen donor compound is N,N-dibenzylethanolamine acetate.

Claim 17. (Currently Amended) The element of Claim 11 wherein the dye forming hydrogen donor compound is 4-(2-hydroxyethyl)-morpholine acetate.

Claim 18. (Currently Amended) The element of Claim 12 wherein the ~~tertiary~~ aliphatic amine compound in the dye forming composition is present in the amount of 2 to 20 % by weight, based on the weight of the total composition.

Claim 19. (Currently Amended) The element of Claim 2 wherein the dye forming composition comprises:

- (1) a film forming polymeric binder,
- (2) a photooxidant,
- (3) a leuco dye,
- (4) up to 10 % by weight, based on the weight of the total composition, of an acid, and
- (5) a mixture comprising (a) the at least one photoreducible quinone, and (b) at least one hydrogen donor compound.

Claim 20. (Original) The element of Claim 19 wherein the polymeric binder is a cellulose acetate ester.

Claim 21. (Original) The element of Claim 19 wherein the polymeric binder is poly(vinyl butyral).

Claim 22. (Original) The element of Claim 19 wherein the leuco dye is an aminotriarylmethane, aminoxanthene, aminothioxanthene, amino-9,10-dihydroacridine, aminophenoxazine, aminophenothiazine, aminodihydrophenazine, aminodiphenyl methane, leuco indamine, aminohydrocinnamic acid (cyanoethane, leuco methine) and corresponding ester, hydrazine, leuco indigoid dye, amino 2,3-dihydroanthraquinone, tetrahalo-p,p'-biphenol, 2(p-hydroxyphenyl)-4,5-diphenylimidazole, indanone, phenethylaniline, or combination thereof.

Claim 23. (Original) The element of Claim 22 wherein the leuco dye is 4,4',4''-methylidynetris[N,N-diethyl-3-methyl-benzenamine].

Claim 24. (Original) The element of Claim 19 wherein the photooxidant is 2,4,5,2',4',5'-hexaaryl-biimidazole dimer.

Claim 25. (Original) The element of Claim 24 wherein the 2,4,5,2',4',5'-hexaaryl-biimidazole compound is TCDM-HABI.

Claim 26. (Original) The element of Claim 19 wherein the acid is dodecylbenzene sulfonic acid, p-toluene sulfonic acid, lower alkyl toluene sulfonic acid or higher alkyl toluene sulfonic acid.

Claim 27. (Original) The element of Claim 19 wherein the acid is dodecylbenzene sulfonic acid.

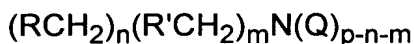
Claim 28. (Original) The element of Claim 19 wherein the photoreducible quinone is 1,6-pyrenequinone, 1,8-pyrenequinone, 9,10-phenanthrenequinone or mixtures thereof.

Claim 29. (Currently Amended) An element for forming a print-out image in which a substrate of the element has, on a first surface thereof, a dye forming composition comprising a hydrogen donor compound and a photoreducible quinone.

and the substrate has, on a second surface thereof, a non-dye forming composition comprising a hydrogen donor compound.

Claim 30. (Currently Amended) The element of Claim 29 wherein at least one of the hydrogen donor compound compounds is selected from the group consisting of:

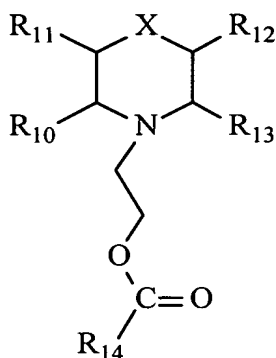
(i) an aliphatic amine compound having the structural formula:



wherein $p = 3$, n and m are 0, 1 or 2, Q is $CH_2CH_2O_2CR''$ or CH_2CH_2COR''
 $CH_2CH_2CO_2R''$ and

R , R' and R'' are the same or different hydrogen atom, or alkyl group of 1 to 12 carbon atoms, or aryl group of 6 to 10 carbon atoms, or alkylaryl group of 7-20 carbon atoms, or alkoxyalkyl group of 1 to 12 carbon atoms; and

(ii) a heterocyclic compound having the structural formula:



wherein X is an oxygen atom, CH_2 group, or a bridge to make a 5-membered cyclic amine,

R_{10} , R_{11} , R_{12} , and R_{13} are the same or different hydrogen atom, or alkyl group of 1 to 12 carbon atoms, or aryl group of 6 to 10 carbon atoms, or alkylaryl group of 7-20 carbon atoms, or alkoxyalkyl group of 1 to 12 carbon atoms, and

R_{14} is a hydrogen atom, or alkyl group of 1 to 12 carbon atoms, or aryl group of 6 to 10 carbon atoms, or alkylaryl group of 7-20 carbon atoms, or alkoxyalkyl group of 1 to 12 carbon atoms.

Claim 31. (Original) The element of Claim 29 in which the substrate comprises cellulose.

Claim 32. (Currently Amended) A process for forming a print-out image comprising:

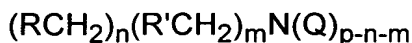
(a) providing a substrate comprising cellulose having a first surface and a second surface;

(b) applying a dye forming composition to the first surface of the substrate, wherein the dye forming composition comprises at least one photoreducible quinone; and

(c) applying a non- dye forming composition to the second surface of the substrate, wherein the non-dye forming composition comprises at least one hydrogen donor compound.

Claim 33. (Currently Amended) The process of Claim 32 wherein the hydrogen donor compound is selected from the group consisting of:

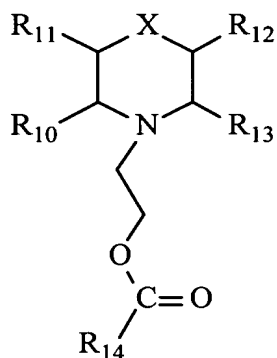
(i) an aliphatic amine compound having the structural formula:



wherein $p = 3$, n and m are 0, 1 or 2, Q is $CH_2CH_2O_2CR''$ or ~~CH_2CH_2COR''~~
 $CH_2CH_2CO_2R''$ and

R , R' and R'' are the same or different hydrogen atom, or alkyl group of 1 to 12 carbon atoms, or aryl group of 6 to 10 carbon atoms, or alkylaryl group of 7-20 carbon atoms, or alkoxyalkyl group of 1 to 12 carbon atoms; and

(ii) a heterocyclic compound having the structural formula:



wherein X is an oxygen atom, CH_2 group, or a bridge to make a 5-membered cyclic amine,

R_{10} , R_{11} , R_{12} , and R_{13} are the same or different hydrogen atom, or alkyl group of 1 to 12 carbon atoms, or aryl group of 6 to 10 carbon atoms, or alkylaryl group of 7-20 carbon atoms, or alkoxyalkyl group of 1 to 12 carbon atoms, and

R_{14} is a hydrogen atom, or alkyl group of 1 to 12 carbon atoms, or aryl group of 6 to 10 carbon atoms, or alkylaryl group of 7-20 carbon atoms, or alkoxyalkyl group of 1 to 12 carbon atoms.

Claim 34. (Original) The process of Claim 32 wherein the dye forming composition comprises a hydrogen donor compound.